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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/643,073	08/21/2000	Irfan Amanat	T30411US	8199

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EXAMINER
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PATEL, JAGDISH

ART UNIT	PAPER NUMBER
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3624

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/643,073

Applicant(s)

AMANAT ET AL

Examiner

JAGDISH N PATEL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it is more than 150 words. Correction is required. See MPEP § 608.01(b).

### *Claim Objections*

2. Claims 5 and 6 are objected to because of the following informalities: in line 4 of claim 5 and line 6 of claim 6 "calculated" should read "calculate". Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

3. 35 U.S.C. 101 reads as follows:  
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
4. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As an initial matter, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors

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for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See *In re Musgrave*, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See *Diamond v. Diehr*, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See *In re Toma*, 197 USPQ (BNA) 852 (CCPA 1978). In *Toma*, the court held that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

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The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. In re Toma at 857.

In Toma, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

The decision in State Street Bank & Trust Co. v. Signature Financial Group, Inc. never addressed this prong of the test. In State Street Bank & Trust Co., the court found that the "mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather, statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See State Street Bank & Trust Co. at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the patent's claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103 and 112." See State Street Bank & Trust Co. at 1377. Both of these analysis goes towards whether

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the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, State Street abolished the Freeman-Walter-Abele test used in *Toma*. However, State Street never addressed the second part of the analysis, i.e., the "technological arts" test established in *Toma* because the invention in State Street (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the *Toma* test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See *Ex parte Bowman*, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

In the present application, Claims 1-6 have no connection to the technological arts. None of the steps in the body of the claim indicate any connection to a computer or technology. The step of "recording for messages..;" "recording for responses..;" "calculating.." and "displaying the identity of the market.." could be performed manually by a person at a trading desk without use of technological means. Therefore, the claims are directed towards non-statutory subject matter. To overcome this rejection the Examiner recommends that Applicant amend the claims to better clarify which of the steps are being performed within the technological arts, such as recording for messages..the time.. in a computer memory.. ; calculating by the computer ..latency..; etc.

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*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

6. A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhannic et al (US 2002/0023048 A1 priority 6/26/00) (hereafter Buhannic).

8. Per claim 1, Buhannic et al (US 2002/0023048 A1) (hereafter Buhannic). Per claim 1, Buhannic teaches a method of displaying latency, the method implemented in a broker-dealer computer system, the system being engaged in automated processing of orders for securities including sending messages to markets and receiving from markets responses to messages, the method comprising the steps of:

(securities trading system, abstract, Figure 1, item 10)

(note that Buhannic discloses markets as "exchanges" as parties associated with trade transactions, see para [0019])

recording for messages sent to markets the time when each message is sent and the identity of the market to which each message is sent, the messages comprising orders and cancellations of orders;

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(referring to [0015] Latency check module 120 establishes communication with each of servers 200, 210, 220, and 230, through the respective latency modules 202, 212, 222, and 232, to continuously check latency of system 10 in general and each server in particular. For example, Packet Internet Groper (PING) technology can be used to send a packet of data between the appropriate servers and logic in latency check module 120 can measure the time required for a reply from the appropriate latency module. Note that each latency modules may correspond to a different market as shown in Fig. 2)

recording for responses received from markets the time when each response is received, wherein each response corresponds to a particular message;

(refer to the time required for a reply from the appropriate module in para [0015], )

calculating for at least one market a latency dependent upon at least one recorded time when at least one message is sent to the market and at least one recorded time when a corresponding response is received from the market;

(para [0015] ..latency check module can measure the time required for a reply from the appropriate latency module)

displaying the identity of the market and the latency for the market.

(para [0019] FIG. 2 illustrates latency chart 300 of the preferred embodiment which can be displayed on a display device of any computer coupled to the system and authorized to view latency information. Column 302 designates the name of the external linkage, e.g., the server associated with a buy side party or a sell side party. Column 304 designates the geographic region of the external linkage. Column 306 indicates whether the linkage is direct from the system or through a counter party. Column 308 indicates the latency time for the linkage based on the tests described above. .. Column 310 indicates the type of party associated with the linkage, such as an exchange, a clearer, an allocation system, and the like.)

Claim 2. The method of claim 1 wherein the latency for a market further comprises latency for a port.

([0006] this limitation is inherently met because the latency measured in Buhanic pertains to electronic trading systems comprising electronic communication networks which inherently comprise all components of the networks including one or more communication ports as is well known in the data communication art. Note that a latency module corresponds to a market in view of each node 100 as described on para [0011] and [0012])



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Claim 3. The method of claim 1 wherein the latency comprises an instant latency calculated dependent upon one recorded time when one message is sent to a market and one recorded time when a corresponding response is received from the market.

([0015] ..latency modules measures time required for a reply from the appropriate latency module, noting that a latency module corresponds to a market in view of each node 100 as described on para [0011] and [0012])

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-<sup>8</sup>~~6~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over Buhannic as applied to claim 1 above, and further in view of Bare (US Pat. 6,577,600) (hereafter Bare).

Claim 4. Whereas Buhannic teaches a method of displaying latency as recited in claim 1, it fails to teach that the comprises an average latency per claim 4.

Bare, in the same field of endeavor, however, discloses a method of determining latency of a computer system. Bare teaches that the latency comprises an average latency dependent upon at least one recorded time when at least one message is sent to the market and at least one recorded time when a corresponding response is received from the market. Bare further teaches that all the recorded times used in calculating the latency are recorded during a defined period of time. (refer to Abstract and Summary of the Invention, col. 6, L 41-59 ..The (weighted) average is then computed from the present latency value and a number of previous latency values. The present latency and hence the weighted average are computed periodically within each switch.).

It would have been obvious to one of ordinary skill in the art at the time of invention to comprise the latency calculated in Buhannic, average latency because the average latency provides a statistically reliable measure of the network performance (i.e. efficiency of the data communication) as opposed to a single measure of the latency.

Claims 5 and 6. Whereas Buhannic teaches a method of displaying latency as recited in claim 1, it fails to teach that the number of recorded times used to calculate the average latency is limited to a defined maximum.

Bare, in the same field of endeavor, however, discloses a method of determining latency of a computer system. Bare teaches that the number of

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recorded times used to calculate the average latency is limited to a defined maximum.

(col. 31 L 1-29, refer to "weighted average latency", ..At each second of time, compute the latency for the queue in question and add this value to the previous port latency as follows:  $((\text{previous latency} \times 15) + \text{current latency}) / 16 = \text{weighted average}$ . The weighted average is then used as the previous latency at the next second when the computation is repeated. Note that number of recorded times is limited to a maximum of 16. However, one of ordinary skill in the art may use different number of maximum recorded times as deemed appropriate.)

Regarding claim 6, Barr calculates that the calculating uses the latest recorded time when a message is sent to the market and the latest recorded time when a corresponding response is received from the market, and wherein the number of recorded times used to calculate the average latency is limited to a defined maximum. (see discussion of claim 5 above).

In regards to claim 7, whereas Buhannic teaches a method of displaying latency as discussed in claim 1 analysis, it fails to teach the steps of counting the number of messages..., counting the number of responses..., respective storing steps and displaying sent to at least one market during a period of time, including storing in computer memory the number of messages sent to the market during the period of time addition to the identity of the market and the latency for the market, the number of messages sent to the market and the number of responses to received from the market during the period of time.

However, note that as discussed in claims 4-6 analysis, Barr inherently teaches counting number of messages and counting number of responses because these steps are required for calculation of average latency as discussed in prior claims. One of ordinary skill in the art would recognize need to store such data in a computer memory as designer's choice. Furthermore, it would have been obvious to one of ordinary skill in the art to combine the available data from the Buhannic and Barr teachings to display in addition to the identity of the market and the latency for the market, the number of messages sent to the market and the number of responses to received from the market during the period of time because this display would provide useful information regarding each market in terms of cumulative load carried by networks for each market.

Claim 8 is analyzed in similar manner. Note that latency for a market comprises as is evident from the Buhannic and Barr teachings. All other limitation regarding counting messages, storing messages and displaying latency are analyzed as per claim 7 in view of latency for a port.

Claims 9-16 correspond to method claims 1-8 respectively and therefore are analyzed in a manner discussed above.

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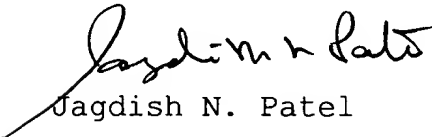
**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jagdish Patel whose telephone number is (703) 308-7837. The examiner can normally be reached Monday-Thursday from 8:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin, can be reached at (703) 308-1038. The fax number for Formal or Official faxes to Technology Center 3600 is (703) 305-7687. **Draft faxes may be submitted directly to the examiner at (703) 746-5563.**

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1113 or 308-1114. Address for hand delivery is 2451 Crystal Drive, Crystal Park 5, 7<sup>th</sup> Floor, Alexandria VA 22202.



Jagdish N. Patel

(Examiner, AU 3624)

11/26/03